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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/743,929	01/16/2001	Silvia Gohlke	P- 00,1958	8930

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EXAMINER

GOFF II, JOHN L

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 03/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/743,929

Applicant(s)

GOHLKE ET AL.

Examiner

John L. Goff

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other:

Art Unit: 1733

### DETAILED ACTION

1. This action is in response to Amendment B received on 1/10/03. In view of applicant's amendment the previous 35 U.S.C. 102(b) rejection as being anticipated by Gurkovich et al. is withdrawn.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

#### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
4. Claim 10 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is insufficient antecedent basis in the specification for the use of the term "substantially". It is suggested to delete "substantially" and insert therein "essentially" (Support found on page 7, lines 26-28). Applicant is then asked to clarify what is meant by "essentially" because the specification does not provide any tolerance for the term.
5. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 1733

6. The term "substantially" in claim 10 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear as to the tolerance provided by the term "substantially". Applicant is asked to clarify what is meant by "substantially".

*Claim Rejections - 35 USC § 103*

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 9, 11-16, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa (JP 06097656 A, Abstract of JP 06097656 A, and Machine translation of JP 06097656 A) in view of Sato et al. (U.S. Patent 4,882,455).

Nishikawa is directed to a method for producing a ceramic multilayer board (substrate for carrying semiconductors, etc.) wherein the board comprises at least one planar electrode connected to electrical interconnections, at least one layer composed of a first green sheet, which becomes compacted in a first temperature interval, and at least one layer composed of a second green sheet, which becomes compacted at a second temperature interval that is different from the

Art Unit: 1733

first temperature interval (See Figures 1-3, the abstract lines 1-9, and the translation page 2, paragraph 11). Nishikawa teaches compacting the first green sheet at the temperature interval between 600 and 1000 °C and compacting the second green sheet at the temperature interval between 800 and 1500 °C. Nishikawa further teaches forming the planar electrodes and electrical interconnections from a conductive metal paste comprising metals such as copper, palladium, platinum, and/or silver (See the translation page 3, paragraphs 21 and 23). Nishikawa is silent as to forming the electrodes from a metal foil as opposed to the conductive metal paste. It would have been well within the purview of one of ordinary skill in the art at the time the invention was made to form the electrodes taught by Nishikawa from metal foil as it was well known in the art to form electrodes from metal foils, conductive metal pastes, and combinations thereof as shown for example by Sato et al. and only the expected results would be achieved.

Sato et al. are directed to electronic circuit substrates. Sato et al. teach forming conductor circuits on the electronic circuit substrates using conventional techniques including adhering a metal foil, applying a conductive paste, and combinations thereof (Column 5, lines 21-29).

Regarding claim 11, Nishikawa teaches a number of different layer stack sequences having different properties/functions (See Figures 1-3). One of ordinary skill in the art at the time the invention was made would have readily appreciated that Nishikawa does not show all possible layer stack combinations and it would not have required undue experimentation to form alternative layer stack combinations having different properties/functions. Furthermore, it is noted Nishikawa teaches two sequences wherein a layer stack having a layer sequence in one direction is arranged on top of a layer stack having the same sequence in an opposite direction (Figures 1 and 2).

Art Unit: 1733

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa and Sato et al. as applied above in paragraph 8, and further in view of Polinski (U.S. Patent 5,708,570).

Nishikawa and Sato et al. teach all of the limitations in claim 10 except for a specific teaching on the first and second green sheets having substantially identical coefficients of expansion. However, it is well known in the art when forming green layer stacks to use layers having substantially identical coefficients of expansion to ensure the layer stack does not crack and/or distort after compacting as shown for example by Polinski. One of ordinary skill in the art at the time the invention was made would have readily appreciated using in Nishikawa as modified by Sato et al. green layers having substantially identical coefficients of expansion as was well known in the art and shown for example by Polinski to ensure the layer stack does not crack and/or distort after compacting.

Polinski is directed to a ceramic structure comprising electronic components, a plurality of green layers, and shrinkage control layers (Figure 2 and Column 4, lines 28-32 and 43-45). Polinski teaches that the coefficients of expansion for the electronic components, green layers, and shrinkage control layers substantially match to ensure the structure does not crack and/or distort after firing (Column 1, lines 50-57 and Column 4, lines 17-23 and 45-48).

### *Response to Arguments*

10. Applicant's arguments with respect to claims 9-16 and 18-20 have been considered but are moot in view of the new ground(s) of rejection. Applicant argues Nishikawa fails to disclose at least one layer comprising a metal foil to form an electrical conductor. As noted by applicant

Art Unit: 1733

Nishikawa uses a metal paste to form at least one conductor layer wherein the metal paste does not generate shrinkage accompanying sintering. Applicant further notes use of the metal foil means shrinkage does not occur in such a film. Sato et al. is cited as one example in the art wherein it is well known to form conductor layers from a number of process including applying metal pastes, adhering metal foils, and combinations thereof. Applicant requests the Examiner cite a reference for claim 11. It is noted Nishikawa teaches a number of different layer stack sequences having different properties/functions (See Figures 1-3). One of ordinary skill in the art at the time the invention was made would have readily appreciated that Nishikawa does not show all possible layer stack combinations and it would not have required undue experimentation to form alternative layer stack combinations having different properties/functions. Furthermore, it is noted Nishikawa meets the limitations of claim 11 in, showing two sequences wherein a layer stack having a layer sequence in one direction is arranged on top of a layer stack having the same sequence in an opposite direction (Figures 1 and 2).

### *Conclusion*

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Horiuchi et al. (U.S. Patent 5,683,791) and Ryugo et al. (U.S. Patent 6,337,123) teach conventional techniques for forming a conductive layer on a ceramic substrate wherein the techniques include forming the conductive layer from a conductive paste, a metal foil, etc. (Column 6, lines 53-60 of '791 and Column 9, lines 18-27 of '123).

Art Unit: 1733

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 1733

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **703-305-7481**. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



John L. Goff  
March 19, 2003



Michael W. Ball  
Supervisory Patent Examiner  
Technology Center 1700